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CALCULUS.

313. Proposed by M. E. GRABER, A. M., Heidelberg University, Tiffin, Ohio.

Evaluate the definite integral $\int_0^\infty (e^{-2ax^2} + e^{2ax^2}) dx$.

314. Proposed by REV. J. H. MEYER, S. J., New Orleans, La.

A fox started from a certain point and ran due east 300 yards, when it was overtaken by a hound that started from a point 100 yards due north of the fox's starting point, and ran directly towards the fox throughout the race. Find the length of the curve described by hound, both having started at the same instant, with a uniform velocity.

315. Proposed by C. N. SCHMALL, New York City.

If $y=f(x)$, show by Taylor's Theorem that

$$f\left(\frac{x}{1+x}\right) = y - \frac{x^2}{1+x} \cdot \frac{dy}{dx} + \frac{x^4}{2(1+x)^2} \cdot \frac{d^2y}{dx^2} - \frac{x^6}{2 \cdot 3 \cdot (1+x)^3} \cdot \frac{d^3y}{dx^3} + \dots \text{ etc.}$$

NUMBER THEORY AND DIOPHANTINE ANALYSIS.

184. Proposed by E. B. ESCOTT, University of Michigan, Ann Arbor, Mich.

Prove that $\frac{\pi}{12} = \tan^{-1} \frac{1}{2} + \tan^{-1} \frac{1}{8} + \tan^{-1} \frac{1}{30} + \tan^{-1} \frac{1}{112} + \dots$, where 2, 8, 30, 112..., is a recurring series with the recursion formula $u_n = 4u_{n-1} - u_{n-2}$.

NOTES AND NEWS.

Dr. R. D. Carmichael has been appointed to an assistant professorship in mathematics at the University of Indiana. S.

The one hundred and fifty-third regular meeting of the American Mathematical Society was held at the University of Chicago, on Friday and Saturday, April 28 and 29, 1911. There were in attendance eighty-six members and thirty visitors. Among the members from a distance were Professors Maxime Bôcher and William F. Osgood of Harvard University; Professor Percy F. Smith of Yale University; Professor F. N. Cole, Secretary of the Society, and Dr. N. J. Lennes of Columbia University; and Professor H. B. Fine, President of the Society, of Princeton University. The large attendance was due in part to the fact that this was the first meeting of the Society as a whole, aside from the summer meetings, held in the West since the sessions in St. Louis, at the time of the World's Exposition; but more largely, doubtless, to the desire of the members to hear the retiring presidential address of Professor Bôcher, who was greeted by an audience of over one hundred members and visitors. At the dinner on Friday evening, seventy-six members were present and remained till a late hour in social intercourse. There were fifty-three papers presented at the four sessions. S.